

## LEGGADINA LAKEDOWNENSIS, A NEW SPECIES OF MURID RODENT FROM NORTH QUEENSLAND

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### Summary

WATTS, C. H. S. (1976).—*Leggadina lakedownensis*, a new species of Murid rodent from north Queensland. *Trans. R. Soc. S. Aust.* **100**(2), 105-108, 31 May, 1976.

*Leggadina lakedownensis*, a new species of murid rodent from northeastern Queensland is described and figured. Morphologically it most closely resembles *L. forresti* (Thomas).

### Introduction

A pair of small rodents from Cape York, examined during the course of a broader investigation into the karyotypes of Australian rodents, was found to differ in karyotype, blood proteins, and cranial morphology from the otherwise similar *Leggadina forresti*, as well as all other murids examined.

### *Leggadina lakedownensis* n.sp.

FIGS 1, 2, and 3

*Holotype*: Qld Mus. JM1192, ♀. Received from Queensland Museum in May 1975, killed August 1975. The parents of this specimen were received by the Queensland Museum from Mr C. Tanner in August 1973; these were offspring of animals collected at Lakeland Downs,

110 km S of Cooktown, Queensland by Mr R. Buckley in 1973.

*Description*: (Colour after Ridgway 1912). Head relatively narrow and pointed as in *L. deliculata* and *L. hermannsburgensis*. Eyes not as prominent as in those species or in *L. forresti*. Ears small and broad, proportionately smaller than in *L. forresti*. Feet narrow. Hairs on back with tips buffy brown grading to pale olive-buff on sides, bases of hairs blackish brown which shows through giving back a brindled look. Underside white, hairs white to base, as are hairs on upper surface of feet. Face with suggestion of darker central stripe and lighter ring around eyes. Tail sparsely haired with light-coloured hairs.

Skull flat on top, rostrum short, interorbital region broad. Interparietal wide, short. Zyg-

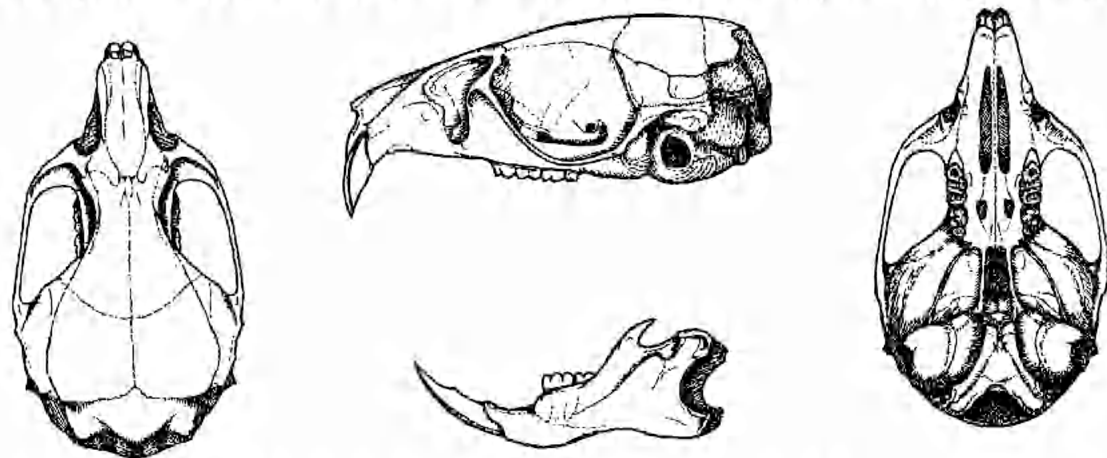


Fig. 1. Dorsal, lateral and ventral views of skull of Holotype *Leggadina lakedownensis* n.sp., x 2.5.

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Fig. 2. Upper right molar tooth row of holotype of *Leggadina lakedownensis* n.sp.

matic plates moderate, minimum width equal to length of  $M_1$ . Lacrimals small. Nasals short, not exceeding premaxillae anteriorly. Incisive foraminae longer than tooth row, reaching beyond anterior end of  $M_1$ , broad, slightly wider posteriorly, broadly rounded posteriorly, more pointed anteriorly. Posterior palatal foraminae oval, about length of  $M_3$ . Mesopterygoid fossae narrow, their width about equal to length of  $M_3$ . Bullae moderately developed about size of occipital foraminae, the distance between them about equal to combined lengths of  $M_2$  and  $M_3$ . Upper incisors forward pointing. Molars as in Figure 2, anterior ligular cusp of  $M_1$  blade-like and strongly developed.  $M_1$  large, approximately 65% of tooth row,  $M_3$  small, approximately 15% of tooth row.

*Specimens examined*: Paratypes: Qld Mus. JM1293 ♀, JM1294 ♀ bred in captivity; collection details as for Holotype. Referred specimen. Qld Mus. J.17919, Williams Id, Queensland (35°S; 135°E), 1969, coll. Mr. C. Tanner.

### Diagnosis

(Head and body 60–70 mm, Tail 40–50 mm, Ear 10–12 mm, Skull length 20–23 mm). Incisive foraminae reaching beyond anterior end of  $M_1$ , rounded and slightly widened posteriorly. Upper incisors forward pointing. Upper molar tooth row 3.7–4.2 mm long. Anterior ligular cusp of  $M_1$  blade-like and strongly developed.  $M_1$  4 to 5 times length of  $M_3$ .

### Systematic position

*Leggadina lakedownensis* is separated from all named forms within the genus *Leggadina*, as recognised by Tate (1951), except *L. forresti* (Thomas), *L. waitei* (Troughton) and *L. messoria* (Thomas), by the short tail, small ears, long incisive foraminae, and large molar tooth row with  $M_1$  large and with a strongly developed anterior ligular cusp.

These three taxa, *L. forresti*, *L. waitei* and *L. messoria*, were considered to be very closely related by Tate (1951) and were synonymised under the name of *Pseudomys forresti* by Ride (1970). My examination of the types of all three supports this view that only one species is involved, characterized by downward pointing upper incisors and long incisive foraminae narrowing posteriorly and about 3 times the length of  $M_3$ . Measurements of the Holotypes are included in Table 2.

*Leggadina lakedownensis* differs from *L. forresti* (and the Holotypes of *L. waitei* and *L. messoria*) in having the incisive foraminae widening rather than narrowing posteriorly, a slightly larger  $M_1$  (in comparison to total tooth row), a smaller  $M_3$  and forward pointing upper incisors. On the limited evidence available it is

TABLE 1  
Measurements of specimens of *L. lakedownensis* (mm)

	1	2	3	4
Head and body	72	—	—	64
Tail	45	—	—	41
Hind foot (S.u.)	15	—	—	14
Ear (from notch)	11	—	—	11
Greatest length of skull	23.0	21.9	—	20.4
Zygomatic breadth	12.5	11.4	12.0	10.8
Interorbital breadth	3.6	3.5	3.4	3.6
Depth of brain case, including bullae	8.4	—	—	7.6
Length of nasal	7.3	7.3	7.3	6.7
Length of ant. palatal foramina	5.7	5.2	5.4	4.8
Crown length of molar row	4.0	3.9	3.7	4.2
Crown length of $M_1$	2.7	2.7	2.4	2.6
Crown length of $M_3$	0.6	0.5	0.5	0.7

1. Qld Mus. JM1292 ♀, Lakeland Downs, Qld, 1973. Holotype.
2. Qld Mus. JM1294 ♀, Lakeland Downs, Qld, 1973.
3. Qld Mus. JM1293 ♀, Lakeland Downs, Qld, 1973.
4. Qld Mus. J17919, Williams Id, Qld, 1969.



Fig. 3. *Leggadina lakedownensis*, n.sp.

a slightly smaller animal. In my opinion the scale of these differences indicate a form specifically distinct from *L. forresti* or any other described rodent.

Support for the distinctiveness of *L. lakedownensis* from *L. forresti* comes from studies of the chromosomes and blood proteins of these and some related species (Baverstoeck *et al.* 1976). These studies suggest that *L. forresti* and *L. lakedownensis* form a distinct group within *Pseudomys sensu lato*. The morphological characters (cf. above) tend to support this view and it seems prudent at this stage to retain the genus *Leggadina* at least for these two species.

#### Habitat and distribution

The Williams Island locality is an area of short grassland surrounded by scrub. (The locality is illustrated as Lakefield Station, by Covacevich (1974, p. 7).) Lakeland Downs is on an isolated area of basalt-derived red and brown soil supporting a natural vegetation of Box woodland (*E. leptophleba*), and deciduous scrub with kangaroo (*Themeda australis*) and

spear (*Heteropogon contortus*) grass. At the time of collection however, sorghum covered the whole area. Rainfall is between 100 cm and 130 cm per year, occurring mainly in the summer (J. Covacevich, personal communication).

At present the species is only known from the above 2 localities on the eastern side of Cape York. *Leggadina forresti* has a much greater distribution in inland Australia and is known from W.A., S.A., N.T., and N.S.W. as well as western Queensland. From specimens in the Australian Museum and Queensland Museum (Table 2) it appears that there is a considerable gap between the distribution of the two species.

#### Acknowledgments

Miss Jeanette Covacevich kindly sent the animals on which the descriptions are based. Curators in the Queensland Museum, Australian Museum and South Australian Museum kindly sent material or allowed me access to specimens of *Leggadina* in their care. I am also grateful to Miss Heather Aslin for drawing the skull and teeth of the type specimen.

TABLE 2

Measurements of specimens of *L. forresti* from Qld, S.A. and N.T. including Holotypes of *L. waitci*, *L. forresti* and *L. messoria* (mm)

	AM M5194, Hart Range, N.T. <i>L. waitci</i> Holotype	BMNH 6.3.9.39, Alexandria, N.T., 1905 <i>L. forresti</i> Holotype	BMNH 25.4.9.1, Melrose, S.A., 1922 <i>L. messoria</i> Holotype	AM M9208, Mt. Isa, Qld, 1968	AM M5165, Burketown, Qld, 1931	QM J5113, Barcardle, Qld	SAM M6344, SW Mann Range, S.A., 1966	SAM M6345, SW Mann Range, S.A., 1966	SAM M2958, Macdonald Downs, S.A., 1930	SAM M2405B, Horn Exp. (Waite)	SAM M2405, Horn Exp. (Waite)	SAM M6350, 60 km N Birdsville, Qld, 1966	SAM M6351, 60 km N Birdsville, Qld, 1966	SAM M6352, 48 km N Oodnadatta, S.A., 1966	SAM M9481, 20 km W Innamincka, S.A., 1973
Head and body	77	104	67	84	83	—	88	100	—	—	—	80	90	89	80
Tail	55	72	53	53	—	—	59	69	—	—	—	56	61	—	59
Hind foot (S.u.)	—	19	17	18.7	17.2	—	17	17	—	—	—	18	18	19	18
Ear (from notch)	—	15	13	13.2	12.3	—	15	14	—	—	—	12	14	15	14
Greatest length of skull	22.4	24.9	23.3	—	—	23.5	23.4	24.6	25.2	24.4	24.3	23.6	24.8	25.2	23.4
Zygomatic breadth	12.0	—	12.4	—	13.8	12.6	12.1	13.2	14.0	12.9	13.1	13.1	13.2	13.0	12.7
Interorbital breadth	3.5	3.6	3.4	3.4	4.0	3.7	3.6	3.3	3.6	3.8	3.6	3.7	3.6	3.7	4.0
Depth of brain case, including bullae	8.5	8.9	8.1	7.8	8.6	8.7	8.6	9.2	8.8	8.9	8.6	—	8.8	8.9	8.9
Length of nasal	7.6	8.5	7.7	9.0	—	—	7.7	9.1	8.3	7.8	8.4	7.7	7.7	7.6	7.5
Length of ant. palatal foramina	5.8	5.3	5.6	6.0	5.0	5.2	5.4	5.6	5.7	5.0	5.5	5.2	5.3	5.6	5.4
Crown length of molar row	4.0	4.3	4.2	4.6	4.5	4.6	4.6	4.3	4.4	4.0	4.5	4.3	4.6	4.4	4.4
Crown length of M <sub>1</sub>	2.4	2.5	2.5	2.7	2.7	2.7	2.7	2.5	2.6	2.3	2.7	2.6	2.6	2.7	2.5
Crown length of M <sub>2</sub>	0.9	1.0	0.9	0.9	0.9	0.9	1.0	0.8	0.8	0.8	0.9	0.9	0.8	0.8	1.0

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